Claim 36 A process according to claim 35, wherein the inhibiting in step (a) comprises cultivating the plants or parts thereof in the presence of a chemical trehalase inhibitor.

Claim 37 A process according to claim 35, wherein the inhibiting in step (a) comprises transforming cells of the plants with a DNA construct encoding a product that inhibits expression of said trehalase activity.

Claim 38 A process according to claim 37, wherein said cells are transformed so as to contain a chimeric trehalose phosphate synthase gene in a plant expressible form, wherein the trehalose phosphate synthase gene comprises an open reading frame encoding trehalose phosphate synthase from *E. coli* in plant expressible form, and wherein the open reading frame encoding trehalose phosphate synthase from *E. coli* is downstream of the CaMV 35S RNA promoter or the potato patatin promoter.

Claim 39 A process according to claim 36, wherein the plants are *Solanum tuberosum* plants.

Claim 40 A process according to claim 39, wherein said plants are cultivated *in vitro*.

Claim 41 A process according to claim 36, wherein said trehalase inhibitor comprises validamycin A in a form suitable for uptake by said plants or parts thereof.

Claim 42 A process according to claim 37, wherein said product is a protein that is a chemical

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trehalase inhibitor.

Claim 43 A process according to claim 35, wherein the plant or plant part in step (b) accumulates trehalose in an amount greater that 0.01% fresh weight.

Claim 44 A plant or a part thereof obtained by the process according to claim 35, which contains trehalose in an amount about 0.01% fresh weight.

Claim 45 A plant part according to claim 44, which is a tuber or a micro-tuber.

Claim 46 A tuber or micro-tubers of *Solanum tuberosum* containing trehalose.

Claim 47 A plant according to claim 44, which has an increased stress tolerance.

Claim 48 A process for obtaining trehalose, comprising the steps of producing trehalose in plant cells, plants or parts thereof according to the process of claim 35 and separating or extracting trehalose from a plant or part thereof identified by the screening in step (b).

Claim 49 A process according to claim 36 wherein the trehalose inhibitor is selected from the group consisting of: validamycin A, trehazolin produced in Micromonospora, strain SANK 62390, validoxylamine A, validoxylamine B, validoxylamine G, D-gluco-Dihydrovalidoxylamine A, L-ido-Dihydrovalidoxylamin A, Deoxynojirimycin, 5-epi-trehazolin, castanospermin and the 86KDa protein from *periplaneta americana*.

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Claim 50 A process according to claim 49, wher in the trehalase inhibitor is administered to the plant or plant parts in an agriculturally acceptable formulation.

Claim 51 A process according to claim 37, wherein the DNA construct encodes an additional copy of an endogenous trehalase gene that provides the plants or parts thereof with said endogenous trehalase activity.

Claim 52 A process according to claim 37, wherein the DNA construct produces an RNA transcript that is sufficiently complementary to an RNA transcript encoding said trehalase activity to inhibit said activity by antisense inhibition.

Claim 53 A process according to claim 37, wherein said DNA construct comprises a promoter that is capable of driving transcription in the cells.

Claim 54 A process according to claim 53, wherein the promoter is tissue specific.

Claim 55 A process according to claim 54, wherein the promoter comprises a promoter fragment of the patatin gene.

Claim 56 A process according to claim 35, wherein the plants are selected from the group consisting of cauliflower, artichoke, apple, banana, berries, cherries, cucumber, grape, lemon, melon, ~~nuts,~~ orange, peach, pear, pepper, plum, strawberry, tomato, ~~leafs~~ cabbages, endive, leek, lettuce, spinach, tobacco, ~~roots,~~ beet, carrot, cassava, turnip, radish, yam, sweet potatoes, bean, pea, soybean, wheat, barley, corn, rice, ~~tubers,~~ and potato.

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Claim 57 A process according to claim 53, wherein the plants are *Solanum tuberosum* plants.

Claim 58 A plant or plant part comprising transformed plant cells produced by the process of claim 53.

Claim 59 A process according to claim 36, wherein the trehalase inhibitor comprises validamycin A in an amount between 100 mM and 10 mM in aqueous solution.

Claim 60 A process according to claim 59, wherein the trehalase inhibitor comprises validamycin A in an amount between 0.1 and 1 mM in aqueous solution.

Claim 61 A process according to claim 44, wherein the plant or the part thereof is from a *Solanaceae* species.

Claim 62 A process according to claim 61, wherein the *Solanaceae* species is *Solanum tuberosum* or *Nicotiana tabacum*.

REMARKS

The courtesy of Examiners Ousama Zaghmout and David Fox in conducting an interview with Applicants' undersigned representative on October 28, 1999 is gratefully acknowledged. The Interview Summary which issued at the interview accurately reflects what transpired, as further detailed below.

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